

II. Amendments to the Claims

Please amend the claims as follows:

Claim 1 (cancelled)

Claim 2 (previously amended): The blend of claim 5 27 formed into a shape.

Claim 3 (cancelled)

Claim 4 (cancelled)

Claim 5 (cancelled; replaced by claim 27)

Claim 6 (cancelled; replaced by claim 28)

Claim 7 (cancelled)

Claim 8 (cancelled)

Claim 9 (previously added): The melt blend of claim 5 27 in which the HMW HDPE component is about 65% to about 80% by weight fraction.

Claim 10 (previously added): The method of claim 6 28 including the step of forming a shape from the melt blend composition.

Claim 11 (cancelled)

Claim 12 (cancelled)

Claim 13 (cancelled; replaced by claim 29)

Claim 14 (previously added): The blend of claim ~~13~~ 29 in which the LMW HDPE homopolymer has a FRR of about 20 to about 60, a density in the range of about 0.955 to about 0.968 grams per cubic centimeter, and a MI of about 2 to about 80 grams per 10 minutes.

Claim 15 (previously added): The blend of claim ~~13~~ 29 in which the LMW HDPE copolymer has a FRR of about 20 to about 60, a density in the range of about 0.947 to about 0.955 grams per cubic centimeters, and a MI of about 2.0 to about 80 grams per 10 minutes.

Claim 16 (previously added): A melt blend of claim ~~5~~ 27 having an ESCR equal to or exceeding about 24 hours.

Claim 17 (previously added): A melt blend of claim ~~13~~ 29 having an ESCR equal to or exceeding about 24 hours.

Claim 18 (cancelled)

Claim 19 (previously added): The melt blend of claim ~~5~~ 27 in which the HMW HDPE component is about 50% to about 95% by weight fraction.

Claim 20 (previously added): The melt blend of claim ~~13~~ 29 in which the HMW HDPE component is about 50% to about 95% by weight fraction.

Claim 21 (previously added): The method of claim ~~6~~ 28 in which the step of selecting a density and MI desired for the melt blend comprises selecting a density in the range of from about 0.945 to about 0.955 grams per cubic centimeter and the step of selecting a MI comprises selecting a MI of less than about 0.4.

Claim 22 (previously added): The method of claim ~~6~~ 28 in which the step of selecting a HMW HDPE comprises selecting a HMW HDPE copolymer.

Claim 23 (cancelled)

Claim 24 (previously added): The melt blend of claim ~~13~~ 29 in which the HMW HDPE component has a density in the range of about 0.945 to about 0.955 grams per cubic centimeter.

Claim 25 (previously added): The melt blend of claim ~~13~~ 29 in which the HMW HDPE component has MI values in the range of about 0.01 to about 0.1 per 10 minutes.

Claim 26 (previously added): The melt blend of claim ~~43~~ 29 in which the HMW HDPE component has a FRR in the range of about 120 to about 280.

Claim 27 (replacing claim 5): A melt blended high density polyethylene (HDPE) composition comprising a principal weight fraction component of a high molecular weight (HMW) copolymer or homopolymer selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE, blended together with a remainder weight fraction component of one or more than one of a low molecular weight (LMW) HDPE homopolymer and a LMW HDPE copolymer selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE, in a ratio in which the logarithm of the melt index (MI) of the blend equals the sum of the products of 1) the weight fraction of the HMW HDPE and the logarithm of the MI of the HMW HDPE, 2) the weight fraction of the LMW HDPE homopolymer and the logarithm of the MI of the LMW HDPE homopolymer, and 3) the weight fraction of the LMW HDPE copolymer and the logarithm of the MI of the LMW HDPE copolymer, and in which the density of the blend equals the sum of 1) the product of the weight fraction and density of each HMW HDPE, 2) the product of the weight fraction and density of each LMW HDPE homopolymer, and 3) the product of the weight fraction and density of each LMW HDPE copolymer in the blend.

Claim 28 (replacing claim 6): A method of blending grades of high molecular weight (HMW) and low molecular weight (LMW) high density polyethylene (HDPE) copolymers or homopolymers selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE comprising the steps of:

selecting a density and a melt index (MI) desired for a melt blend;

selecting from the group of a high molecular weight (HMW) copolymer or homopolymer selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE, a HMW HDPE as a first component of about 50% to about 95% by weight fraction of a mixture of components to be blended;

selecting from the group of a high molecular weight (HMW) copolymer or homopolymer selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE, a low molecular weight (LMW) HDPE copolymer as a second component in the mixture;

selecting as a third component in the mixture, in the instance that the density selected for the blended composition is greater than the density of the HMW HDPE first component, a LMW HDPE homopolymer selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE;

determining a weight fraction ratio of LMW HDPE homopolymer to HMW HDPE in the melt blend, to attain the selected density of the melt blend, according to the formula:

the density of a mixture of the LMW HDPE homopolymer and the HMW HDPE component equals the sum of 1) the product of the weight fraction of the LMW HDPE homopolymer in the mixture and the density of LMW HDPE homopolymer and 2) the product the weight fraction of the HMW HDPE in the mixture and the density of HMW HDPE;

determining the MI of the mixture according to the formula;

the logarithm of the MI of the mixture equals the sum of 1) the product of the weight fraction of the LMW HDPE homopolymer in the mixture and the logarithm of MI of the LMW HDPE homopolymer and 2) the product the weight fraction of the HMW HDPE in the mixture and the logarithm of the MI of the HMW HDPE;

determining the ratio of the weight fraction of a LMW HDPE copolymer selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE to be added to the mixture to attain the selected MI for the blended composition according to the formula:

the logarithm of the MI of the melt blend equals the sum of the products of 1) the weight fraction of the HMW HDPE and the logarithm of the MI of the HMW HDPE, 2) the weight fraction of the LMW HDPE homopolymer and the logarithm of the MI of the LMW HDPE homopolymer, and 3) the weight fraction of the LMW HDPE copolymer;

and

melt blending the HMW HDPE and the LMW HDPE copolymer, and, if the selected density for the blended composition is greater than the density of the HMW HDPE, the LMW HDPE homopolymer, in the amounts determined.

Claim 29 (replacing claim 13): A melt blend of HMW HDPE having a density in the range of about 0.945 to about 0.955 grams per cubic centimeter and MI values of about 0.01 to about 0.1 per 10 minutes and FRR of about 120 to about 280 selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE, and one or more than one of 1) a low molecular weight (LMW) HDPE homopolymer and 2) a LMW HDPE copolymer selected from the group of virgin pellets, recycled, reprocessed, off specification, and wide specification grades of HDPE, in a ratio in which the logarithm of the melt index (MI) of the blend equals the sum of 1) the products of each weight fraction of

the HMW HDPE, the LMW HDPE homopolymer and the LMW HDPE copolymer in the blend and 2) the logarithm of the MI of the respective HMW HDPE, LMW HDPE homopolymer and the LMW HDPE copolymer in the blend.

(Claim 30) (new): A corrugated polyethylene pipe formed from the melt blend of claim 27.

(Claim 31) (new): A corrugated polyethylene pipe formed from the melt blend of claim 28.

(Claim 32) (new): A method for manufacturing a corrugated polyethylene pipe in accordance with claim 29 in which, after the step of melt blending the HMW HDPE and the LMW HDPE copolymer, and, if the selected density for the blended composition is greater than the density of the HMW HDPE, the LMW HDPE homopolymer, in the amounts determined, the materials blended are formed into a corrugated polyethylene pipe.